

## A LIST OF MICHIGAN CORIXIDAE (HEMIPTERA) WITH FOUR NEW STATE RECORDS FROM THE GREAT LAKES OF MICHIGAN<sup>1</sup>

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ABSTRACT : *Corisella tarsalis*, *Sigara lineata*, *Trichocorixa borealis*, and *Trichocorixa kanza* were recently identified from Michigan and constitute new state records. These four species were collected from two of the Great Lakes or their connecting rivers and increase the number of corixids for Michigan to 47 species. We newly report the genus *Corisella* for Michigan. Although most abundant in the western United States and Canada, scattered *Corisella* records in the Midwest (Wisconsin, Ohio and Ontario, Canada) indicated there was a good probability of its occurrence in Michigan. Finally, we provide an updated list of Michigan Corixidae.

As a zealous and avid aquatic Hemiptera worker, H.B. Hungerford, who was a staff member of the Michigan Biological Station from 1923 through 1954, provided much of the knowledge we have concerning the corixid fauna of Michigan (Woodruff, 1956). In Hungerford's superb monograph (Hungerford, 1948) he listed 6 genera encompassing 43 species for Michigan. Since this publication, there have been no newly reported corixids for the State (Polhemus et al, 1988; Steve Chordas and Patrick Hudson, unpublished data). Thus, it has now been over 50 years since any additional corixids have been reported for Michigan.

A Great Lakes invertebrate biodiversity project, initiated at the Great Lakes Science Center (Ann Arbor, Michigan), was recently begun to establish a long term network of taxonomic expertise, invertebrate reference collection, data bases and archival system for Great Lake invertebrates. Collections for this project have been taken from deep water sites, where the fauna is well known, and from various near shore sites, where the fauna is less known. Culmination of these efforts will result in keys and ecological notes that should improve monitoring of Great Lakes invertebrates and enable investigators to gauge their health and the quality of their habitat.

During this project, many corixids have been collected. From these specimens, we have identified one genus and four species that were previously unreported for Michigan. We newly report these species together with an updated list of Michigan corixids.

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## METHODS

Adult corixids were collected by black light traps, dip nets, seines, plankton nets or were found in fish stomachs. Identifications were made using keys, illustrations and descriptions by Hungerford (1948) and Sailer (1948). References of known distribution were Polhemus et al (1988), Hungerford (1948) and Sailer (1948). Notes by Hilsenhoff (1984) for Wisconsin specimens were used as comparative references to discuss newly reported taxa. Specimens were preserved in 70% ethanol and deposited in the Ohio Biological Survey's Aquatic Insect Collection (Museum of Biological Diversity at The Ohio State University, Columbus, Ohio) or the aquatic invertebrate collection at the Great Lakes Science Center - U.S.G.S. (Ann Arbor, Michigan).

## SPECIES LIST AND NEW STATE RECORDS

We newly report *Corisella tarsalis* (Fieber, 1851), *Sigara lineata* (Forster, 1771), *Trichocorixa borealis* Sailer, 1948, and *Trichocorixa kanza* Sailer, 1948, for Michigan. These four species together with the genus *Corisella* increase the total number and genera of corixids for Michigan to 47 and 7, respectively (Table 1). All four species have been previously recorded for at least one state bordering Michigan and it may be that the Upper Peninsula and southern Lower Peninsula, where these species were obtained, had simply not been extensively collected in the past. Alternatively, in Michigan, these species may be restricted to specific Great Lakes habitats which also have been generally overlooked.

***Corisella tarsalis*:** A single black light sample taken in June at Toledo Beach, Monroe County contained this species. Of the four *Corisella* species known for the United States and Canada, this species has the widest distribution extending from California east to Ontario and New York and south to Mexico. It has been reported as a fairly uncommon species for only one state, Wisconsin, bordering Michigan (Hilsenhoff, 1984). In Canada, the closest record is Ontario (Hungerford, 1948; Polhemus et al, 1988). Given the proximity of these records, we suspected that it may occur in Michigan. Since it was unknown to previous workers who avidly collected in the State (e.g. H.B. Hungerford) and we have but a single collection from southeast Michigan, we suspect that this species (even if found in additional localities) will be generally uncommon in Michigan. Further, given that we found it in the most southeastern county of Michigan, we think this species may also occur in similar habitats in northwest Ohio or northeast Indiana.

***Sigara lineata*:** This species was identified from a dip net sample taken along the shore of Thunder Bay, Lake Huron in Alpena County and 10 separate seine and plankton tow samples taken from St. Marys River, Chippewa County. Additionally, specimens were found in the stomachs of juvenile Lake Trout

(*Salvelinus namaycush*) and Slimy Sculpin (*Cottus cognatus*) collected at a depth of 10 to 30 meters from North Point, Lake Huron in Alpena county. All collections were made during May and June.

The distribution of this little species is confined to a handful of Midwest States and a few provinces in Canada. It has been reported, in part, from Illinois, Ohio, Wisconsin and Ontario, fully placing Michigan within its range (Hilsenhoff, 1984; Hungerford, 1948; Polhemus et al, 1988). With its addition there are now 23 *Sigara* species, comprising approximately 50% of the total Corixidae taxa, reported for Michigan (Table 1).

This species is apparently a fluvial form as it has repeatedly been reported from lotic habitats. Hilsenhoff (1984) reported it as common in Wisconsin from sandbottom rivers while Hungerford (1948) indicated it preferred aquatic habitats possessing some type of current or moving water. Our collections were obtained from these habitat types. The Great Lakes have permanent, or at least seasonal, water circulation patterns resulting from wave action and barometric pressure differences which induce, along with near shore wave action, currents that are comparable to large rivers. Thus, the appearance of this species in both Lake Huron shore line samples and the stomachs of fish collected at depths greater than 10 meters is not a deviation from the general fluvial nature of this species.

This species was often found in association with *Sigara trilineata*. However, *S. lineata* was consistently less abundant than *S. trilineata*. Most of our collections contained many *S. lineata*, indicating good populations, and we think it may occur in other similar habitats in Michigan.

***Trichocorixa borealis*:** A seine and plankton tow collection taken in June from St. Marys River, Chippewa County contained this species. It is generally distributed through Canada and the north portion of the Midwest United States. In the Great Lakes area, it has previously been reported for Iowa, Minnesota, Ohio, Wisconsin and Ontario which clearly placed Michigan within its range (Hilsenhoff, 1984; Polhemus et al, 1988). Although presently known from only one county in the State, given its distribution in the Great Lakes region, it may be found in other localities in Michigan.

***Trichocorixa kanza*:** A series of 10 black light samples taken from June through September at Toledo Beach, Monroe County contained this species. It occurs across the United States and northern Mexico with records extending north into Wisconsin, Iowa, Pennsylvania (Hilsenhoff, 1984; Polhemus et al, 1988) and now Michigan. Chordas and Armitage (1998) recently reported this species from Ohio, establishing its occurrence in the southern Great Lakes region. Of the four newly reported taxa, this species was the least expected. Typically being a southern species and given that we found it only from the most southeastern county, *T. kanza* may be uncommon in Michigan and restricted to the southern portion.

Table 1. List of water boatmen species for Michigan. Number of species per genus in ( ). Genus in bold followed by "\*" denotes a genus new to Michigan. Species in bold followed by "++" denote new state records.

Genus	Species
<i>Calicorixa</i> White, 1873 (2)	<i>C. alaskensis</i> Hungerford, 1926 : <i>C. audeni</i> Hungerford, 1928
<i>Corisella</i> Lundblad, 1928 * (1)	<i>C. tarsalis</i> (Fieber, 1851) ++
<i>Cymatia</i> Flor, 1860 (1)	<i>C. americana</i> Hussey, 1920
<i>Hesperocorixa</i> Kirkaldy, 1908 (12)	<i>H. atopodonta</i> (Hungerford, 1927) : <i>H. interrupta</i> (Say, 1825) <i>H. kennicotti</i> (Uhler, 1897) : <i>H. lobata</i> (Hungerford, 1925) <i>H. lucida</i> (Abbott, 1916) : <i>H. michiganensis</i> (Hungerford, 1926) <i>H. minorella</i> (Hungerford, 1926) : <i>H. nitida</i> (Fieber, 1851) <i>H. obliqua</i> (Hungerford, 1925) : <i>H. scabricula</i> (Walley, 1936) <i>H. semilucida</i> (Walley, 1930) : <i>H. vulgaris</i> (Hungerford, 1925)
<i>Palmacorixa</i> Abbott, 1912 (3)	<i>P. buenoi</i> Abbott, 1913 : <i>P. gillettei</i> Abbott, 1912 <i>P. nana</i> Walley, 1930
<i>Sigara</i> Fabricius, 1775 (23)	<i>S. alternata</i> (Say, 1825) : <i>S. bicoloripennis</i> (Walley, 1936) <i>S. compressoidea</i> (Hungerford, 1928) : <i>S. concepala</i> (Hungerford, 1926) <i>S. decoratella</i> (Hungerford, 1926) : <i>S. defecta</i> Hungerford, 1948 <i>S. dolabra</i> Hungerford, and Sailer, 1943 <i>S. douglasensis</i> (Hungerford, 1926) : <i>S. grossolineata</i> Hungerford, 1948 <i>S. knighti</i> Hungerford, 1948 : <i>S. lineata</i> (Forester, 1771) ++ <i>S. mackinacensis</i> (Hungerford, 1928) : <i>S. macropala</i> (Hungerford, 1926) <i>S. mathesoni</i> Hungerford, 1948 : <i>S. modesta</i> (Abbott, 1916) <i>S. mullettensis</i> (Hungerford, 1928) : <i>S. penniensis</i> (Hungerford, 1928) <i>S. signata</i> (Fieber, 1851) : <i>S. solensis</i> (Hungerford, 1926) <i>S. transfigurata</i> (Walley, 1930) : <i>S. trilineata</i> (Provancher, 1872) <i>S. variabilis</i> (Hungerford, 1926) : <i>S. zimmermanni</i> (Fieber, 1851)
<i>Trichocorixa</i> Kirkaldy, 1908 (5)	<i>T. calva</i> (Say, 1832) : <i>T. borealis</i> Sailer, 1948 ++ <i>T. kanza</i> Sailer, 1948 ++ : <i>T. macroceps</i> (Kirkaldy, 1908) <i>T. sexcincta</i> (Champion, 1901)

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### ROSS LANG RECEIVES THE AMERICAN ENTOMOLOGICAL SOCIETY'S 1999 CALVERT AWARD

In 1987, the American Entomological Society initiated the Calvert Award to be presented to a young person who has demonstrated outstanding accomplishments in insect-related study. The Award is named in honor of Dr. Philip P. Calvert who joined the Society as a teenager, later became its president, and was a member for 74 years. As Professor of Biology at the University of Pennsylvania and an Associate of the Academy of Natural Sciences of Philadelphia, Dr. Calvert played an important role in stimulating an interest in insects among young people.

This year, the thirteenth Calvert Award was presented to Ross Lang, an eighth grade home-schooled student from Yardley, Pennsylvania. His project, conducted over the past year, was entitled, "Maximum Moth Metabolism — Determined by Warburg." Ross, inspired by an article in Scientific American, built himself an apparatus to measure oxygen consumption and used it to measure respiration by codling moths at different temperatures. Last year, Ross was runner up for the Calvert Award with a project on whether yellow jackets can remember where they found food from one day to the next.

As the winner of the Calvert Award, Ross Lang received memberships in the American Entomological Society and the Young Entomologists' Society as well as a \$50 check. Jon Gelhaus, president of the Society, made the presentation at the membership meeting of the Society on April 28 at the Academy of Natural Sciences in Philadelphia.

Another student was honored at the meeting. Abigail Kochanik, a senior from Cherokee High School in Marlton, New Jersey, took second place for her study, "To kill or not to kill? Part II." Ross and Abigail participated in the annual Delaware Valley Science Fairs held on March 31 at the Expo Center in Fort Washington, Pennsylvania.

Harold White, Chair,  
Education Committee